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<151> 1997-09-19

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<212> PRT

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<400> 4

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Thr Ile Thr Gln Ser Leu Ile Ser Arg Tyr His Lys Gly Glu Leu Lys
      65             70             75             80

Leu Glu Glu Pro Thr Tyr Phe Gln Ser Leu Leu Met Thr Tyr Lys Ser
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Met Ser Ser Ser Glu Gln Ile Ala Thr Thr Asn Leu Leu Lys Lys Ile
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Ile Arg Arg Ala Ile Glu Ile Ser Asp Val Lys Val Tyr Ala Ile Leu
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Leu Met Cys Ser Met Gln His Pro Pro Ser Trp Leu Ile His Trp Phe
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Glu Val Lys Ser His Gly Phe Ile Leu Ile Asp Asn Gln Thr Leu Ser
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Ile Ser Arg Gln Ser Pro Leu Leu Glu His Met Asn Leu Lys Lys Leu
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Thr Ile Thr Gln Ser Leu Ile Ser Arg Tyr His Lys Gly Glu Leu Lys
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Leu Ser Ala Val Glu Asn Asn Gln Ser Tyr Thr Asn Ser Asp Lys Ser
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His Ser Val Asn Gln Asn Ile Thr Ile Lys Thr Thr Leu Leu Lys Lys
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Leu Met Cys Ser Met Gln His Pro Pro Ser Trp Leu Ile His Trp Phe
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Glu Val Lys Ser His Gly Phe Ile Leu Ile Asp Asn Gln Thr Leu Ser

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Thr Ile Thr Gln Ser Leu Ile Ser Arg Tyr His Lys Gly Glu Leu Lys
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Thr Ile Thr Gln Ser Leu Ile Ser Arg Tyr His Lys Gly Glu Leu Lys
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Leu Glu Glu Pro Thr Tyr Phe Gln Ser Leu Leu Met Thr Tyr Lys Ser
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 100 105 110

Ile Arg Arg Ala Ile Glu Ile Ser Asp Val Lys Val Tyr Ala Ile Leu
 115 120 125

Asn Lys Leu Gly Leu Lys Glu Lys Asp Arg Val Lys Pro Asn Asn Asn
 130 135 140

Ser Gly Asp Glu Asn Ser Val Leu Thr Thr Ile Ile Lys Asp Asp Ile
 145 150 155 160

Leu Ser Ala Val Glu Asn Asn Gln Ser Tyr Thr Asn Ser Asp Lys Ser

165

170

175

His Ser Val Asn Gln Asn Ile Thr Ile Lys Thr Thr Leu Leu Lys Lys
 180 185 190

Leu Met Cys Ser Met Gln His Pro Pro Ser Trp Leu Ile His Trp Phe
 195 200 205

Asn Leu Tyr Thr Lys Leu Asn Asn Ile Leu Thr Gln Tyr Arg Ser Asn
 210 215 220

Glu Val Lys Ser His Gly Phe Ile Leu Ile Asp Asn Gln Thr Leu Ser
 225 230 235 240

Gly Phe Gln Phe Ile Leu Asn Gln Tyr Gly Cys Ile Val Tyr His Lys
 245 250 255

Gly Leu Lys Lys Ile Thr Thr Thr Thr Tyr Asn Gln Phe Leu Thr Trp
 260 265 270

Lys Asp Ile Ser Leu Ser Arg Leu Asn Val Cys Leu Ile Thr Trp Ile
 275 280 285

Ser Asn Cys Leu Asn Thr Leu Asn Lys Ser Leu Gly Leu Arg Cys Gly
 290 295 300

Phe Asn Asn Val Val Leu Ser Gln Leu Phe Leu Tyr Gly Asp Cys Ile
 305 310 315 320

Leu Lys Leu Phe His Asn Glu Gly Phe Tyr Ile Ile Lys Glu Val Glu
 325 330 335

Gly Phe Ile Met Ser Leu Ile Leu Asn Ile Thr Glu Glu Asp Gln Phe
 340 345 350

Arg Lys Arg Phe Tyr Asn Ser Met Leu Asn Asn Ile Thr Asp Ala Ala
 355 360 365

Ile Lys Ala Gln Lys Asp Leu Leu Ser Arg Val Cys His Thr Leu Leu
 370 375 380

Asp Lys Thr Val Ser Asp Asn Ile Ile Asn Gly Lys Trp Ile Ile Leu
 385 390 395 400

Leu Ser Lys Phe Leu Lys Leu Ile Lys Leu Ala Gly Asp Asn Asn Leu
 405 410 415

Asn Asn Leu Ser Glu Leu Tyr Phe Leu Phe Arg Ile Phe Gly His Pro

420 425 430
 Met Val Asp Glu Arg Gln Ala Met Asp Ser Val Arg Ile Asn Cys Asn
 435 440 445
 Glu Thr Lys Phe Tyr Leu Leu Ser Ser Leu Ser Thr Leu Arg Gly Ala
 450 455 460
 Phe Ile Tyr Arg Ile Ile Lys Gly Phe Val Asn Thr Tyr Asn Arg Trp
 465 470 475 480
 Pro Thr Leu Arg Asn Ala Ile Val Leu Pro Leu Arg Trp Leu Asn Tyr
 485 490 495
 Tyr Lys Leu Asn Thr Tyr Pro Ser Leu Leu Glu Ile Thr Glu Asn Asp
 500 505 510
 Leu Ile Ile Leu Ser Gly Leu Arg Phe Tyr Arg Glu Phe His Leu Pro
 515 520 525
 Lys Lys Val Asp Leu Glu Met Ile Ile Asn Asp Lys Ala Ile Ser Pro
 530 535 540
 Pro Lys Asp Leu Ile Trp Thr Ser Phe Pro Arg Asn Tyr Met Pro Ser
 545 550 555 560
 His Ile Gln Asn Tyr Ile Glu His Glu Lys Leu Lys Phe Ser Glu Ser
 565 570 575
 Asp Arg Ser Arg Arg Val Leu Glu Tyr Tyr Leu Arg Asp Asn Lys Phe
 580 585 590
 Asn Glu Cys Asp Leu Tyr Asn Cys Val Val Asn Gln Ser Tyr Leu Asn
 595 600 605
 Asn Ser Asn His Val Val Ser Leu Thr Gly Lys Glu Arg Glu Leu Ser
 610 615 620
 Val Gly Arg Met Phe Ala Met Gln Pro Gly Met Phe Arg Gln Ile Gln
 625 630 635 640
 Ile Leu Ala Glu Lys Met Ile Ala Glu Asn Ile Leu Gln Phe Phe Pro
 645 650 655
 Glu Ser Leu Thr Arg Tyr Gly Asp Leu Glu Leu Gln Lys Ile Leu Glu
 660 665 670
 Leu Lys Ala Gly Ile Ser Asn Lys Ser Asn Arg Tyr Asn Asp Asn Tyr

675	680	685
Asn Asn Tyr Ile Ser Lys Cys Ser Ile Ile Thr Asp Leu Ser Lys Phe		
690	695	700
Asn Gln Ala Phe Arg Tyr Glu Thr Ser Cys Ile Cys Ser Asp Val Leu		
705	710	715 720
Asp Glu Leu His Gly Val Gln Ser Leu Phe Ser Trp Leu His Leu Thr		
	725	730 735
Ile Pro Leu Val Thr Ile Ile Cys Thr Tyr Arg His Ala Pro Pro Phe		
	740	745 750
Ile Lys Asp His Val Val Asn Leu Asn Glu Val Asp Glu Gln Ser Gly		
	755	760 765
Leu Tyr Arg Tyr His Met Gly Gly Ile Glu Gly Trp Cys Gln Lys Leu		
	770	775 780
Trp Thr Ile Glu Ala Ile Ser Leu Leu Asp Leu Ile Ser Leu Lys Gly		
	785	790 795 800
Lys Phe Ser Ile Thr Ala Leu Ile Asn Gly Asp Asn Gln Ser Ile Asp		
	805	810 815
Ile Ser Lys Pro Val Arg Leu Ile Glu Gly Gln Thr His Ala Gln Ala		
	820	825 830
Asp Tyr Leu Leu Ala Leu Asn Ser Leu Lys Leu Leu Tyr Lys Glu Tyr		
	835	840 845
Ala Gly Ile Gly His Lys Leu Lys Gly Thr Glu Thr Tyr Ile Ser Arg		
	850	855 860
Asp Met Gln Phe Met Ser Lys Thr Ile Gln His Asn Gly Val Tyr Tyr		
	865	870 875 880
Pro Ala Ser Ile Lys Lys Val Leu Arg Val Gly Pro Trp Ile Asn Thr		
	885	890 895
Ile Leu Asp Asp Phe Lys Val Ser Leu Glu Ser Ile Gly Ser Leu Thr		
	900	905 910
Gln Glu Leu Glu Tyr Arg Gly Glu Ser Leu Leu Cys Ser Leu Ile Phe		
	915	920 925
Arg Asn Ile Trp Leu Tyr Asn Gln Ile Ala Leu Gln Leu Arg Asn His		

930 935 940
 Ala Leu Cys Asn Asn Lys Leu Tyr Leu Asp Ile Leu Lys Val Leu Lys
 945 950 955 960
 His Leu Lys Thr Phe Phe Asn Leu Asp Ser Ile Asp Met Ala Leu Ser
 965 970 975
 Leu Tyr Met Asn Leu Pro Met Leu Phe Gly Gly Gly Asp Pro Asn Leu
 980 985 990
 Leu Tyr Arg Ser Phe Tyr Arg Arg Thr Pro Asp Phe Leu Thr Glu Ala
 995 1000 1005
 Ile Val His Ser Val Phe Val Leu Ser Tyr Tyr Thr Gly His Asp Leu
 1010 1015 1020
 Gln Asp Lys Leu Gln Asp Leu Pro Asp Asp Arg Leu Asn Lys Phe Leu
 1025 1030 1035 1040
 Thr Cys Val Ile Thr Phe Asp Lys Asn Pro Asn Ala Glu Phe Val Thr
 1045 1050 1055
 Leu Met Arg Asp Pro Gln Ala Leu Gly Ser Glu Arg Gln Ala Lys Ile
 1060 1065 1070
 Thr Ser Glu Ile Asn Arg Leu Ala Val Thr Glu Val Leu Ser Ile Ala
 1075 1080 1085
 Pro Asn Lys Ile Phe Ser Lys Ser Ala Gln His Tyr Thr Thr Thr Glu
 1090 1095 1100
 Ile Asp Leu Asn Asp Ile Met Gln Asn Ile Glu Pro Thr Tyr Pro His
 1105 1110 1115 1120
 Gly Leu Arg Val Val Tyr Glu Ser Leu Pro Phe Tyr Lys Ala Glu Lys
 1125 1130 1135
 Ile Val Asn Leu Ile Ser Gly Thr Lys Ser Ile Thr Asn Ile Leu Glu
 1140 1145 1150
 Lys Thr Ser Ala Ile Asp Thr Thr Asp Ile Asn Arg Ala Thr Asp Met
 1155 1160 1165
 Met Arg Lys Asn Ile Thr Leu Leu Ile Arg Ile Leu Pro Leu Asp Cys
 1170 1175 1180
 Asn Lys Asp Lys Arg Glu Leu Leu Ser Leu Glu Asn Leu Ser Ile Thr

1185 1190 1195 1200
 Glu Leu Ser Lys Tyr Val Arg Glu Arg Ser Trp Ser Leu Ser Asn Ile
 1205 1210 1215
 Val Gly Val Thr Ser Pro Ser Ile Met Phe Thr Met Asp Ile Lys Tyr
 1220 1225 1230
 Thr Thr Ser Thr Ile Ala Ser Gly Ile Ile Ile Glu Lys Tyr Asn Val
 1235 1240 1245
 Asn Ser Leu Thr Arg Gly Glu Arg Gly Pro Thr Lys Pro Trp Val Gly
 1250 1255 1260
 Ser Ser Thr Gln Glu Lys Lys Thr Met Pro Val Tyr Asn Arg Gln Val
 1265 1270 1275 1280
 Leu Thr Lys Lys Gln Arg Asp Gln Ile Asp Leu Leu Ala Lys Leu Asp
 1285 1290 1295
 Trp Val Tyr Ala Ser Ile Asp Asn Lys Asp Glu Phe Met Glu Glu Leu
 1300 1305 1310
 Ser Thr Gly Thr Leu Gly Leu Ser Tyr Glu Lys Ala Lys Lys Leu Phe
 1315 1320 1325
 Pro Gln Tyr Leu Ser Val Asn Tyr Leu His Arg Leu Thr Val Ser Ser
 1330 1335 1340
 Arg Pro Cys Glu Phe Pro Ala Ser Ile Pro Ala Tyr Arg Thr Thr Asn
 1345 1350 1355 1360
 Tyr His Phe Asp Thr Ser Pro Ile Asn His Val Leu Thr Glu Lys Tyr
 1365 1370 1375
 Gly Asp Glu Asp Ile Asp Ile Val Phe Gln Asn Cys Ile Ser Phe Gly
 1380 1385 1390
 Leu Ser Leu Met Ser Val Val Glu Gln Phe Thr Asn Ile Cys Pro Asn
 1395 1400 1405
 Arg Ile Ile Leu Ile Pro Lys Leu Asn Glu Ile His Leu Met Lys Pro
 1410 1415 1420
 Pro Ile Phe Thr Gly Asp Val Asp Ile Ile Lys Leu Lys Gln Val Ile
 1425 1430 1435 1440
 Gln Lys Gln His Met Phe Leu Pro Asp Lys Ile Ser Leu Thr Gln Tyr

1445 1450 1455
 Val Glu Leu Phe Leu Ser Asn Lys Ala Leu Lys Ser Gly Ser His Ile
 1460 1465 1470
 Asn Ser Asn Leu Ile Leu Val His Lys Met Ser Asp Tyr Phe His Asn
 1475 1480 1485
 Ala Tyr Ile Leu Ser Thr Asn Leu Ala Gly His Trp Ile Leu Ile Ile
 1490 1495 1500
 Gln Leu Met Lys Asp Ser Lys Gly Ile Phe Glu Lys Asp Trp Gly Glu
 1505 1510 1515 1520
 Gly Tyr Ile Thr Asp His Met Phe Ile Asn Leu Asn Val Phe Phe Asn
 1525 1530 1535
 Ala Tyr Lys Thr Tyr Leu Leu Cys Phe His Lys Gly Tyr Gly Lys Ala
 1540 1545 1550
 Lys Leu Glu Cys Asp Met Asn Thr Ser Asp Leu Leu Cys Val Leu Glu
 1555 1560 1565
 Leu Ile Asp Ser Ser Tyr Trp Lys Ser Met Ser Lys Val Phe Leu Glu
 1570 1575 1580
 Gln Lys Val Ile Lys Tyr Ile Val Asn Gln Asp Thr Ser Leu Arg Arg
 1585 1590 1595 1600
 Ile Lys Gly Cys His Ser Phe Lys Leu Trp Phe Leu Lys Arg Leu Asp
 1605 1610 1615
 Asn Ala Lys Phe Thr Val Cys Pro Trp Val Val Asn Ile Asp Tyr His
 1620 1625 1630
 Pro Thr His Met Lys Ala Ile Leu Ser Tyr Ile Asp Leu Val Arg Met
 1635 1640 1645
 Gly Leu Ile Asn Val Asp Lys Leu Thr Ile Lys Asn Lys Asn Lys Phe
 1650 1655 1660
 Asn Asp Glu Phe Tyr Thr Ser Asn Leu Phe Tyr Ile Ser Tyr Asn Phe
 1665 1670 1675 1680
 Ser Asp Asn Thr His Leu Leu Thr Lys Gln Ile Arg Ile Ala Asn Ser
 1685 1690 1695
 Glu Leu Glu Asp Asn Tyr Asn Lys Leu Tyr His Pro Thr Pro Glu Thr

1700

1705

1710

Leu Glu Asn Met Ser Leu Ile Pro Val Lys Ser Asn Asn Ser Asn Lys
 1715 1720 1725

Pro Lys Phe Cys Ile Ser Gly Asn Thr Glu Ser Met Met Met Ser Thr
 1730 1735 1740

Phe Ser Ser Lys Met His Ile Lys Ser Ser Thr Val Thr Thr Arg Phe
 1745 1750 1755 1760

Asn Tyr Ser Lys Gln Asp Leu Tyr Asn Leu Phe Pro Ile Val Val Ile
 1765 1770 1775

Asp Lys Ile Ile Asp His Ser Gly Asn Thr Ala Lys Ser Asn Gln Leu
 1780 1785 1790

Tyr Thr Thr Thr Ser His Gln Thr Ser Leu Val Arg Asn Ser Ala Ser
 1795 1800 1805

Leu Tyr Cys Met Leu Pro Trp His His Val Asn Arg Phe Asn Phe Val
 1810 1815 1820

Phe Ser Ser Thr Gly Cys Lys Ile Ser Ile Glu Tyr Ile Leu Lys Asp
 1825 1830 1835 1840

Leu Lys Ile Lys Asp Pro Ser Cys Ile Ala Phe Ile Gly Glu Gly Ala
 1845 1850 1855

Gly Asn Leu Leu Leu Arg Thr Val Val Glu Leu His Pro Asp Ile Arg
 1860 1865 1870

Tyr Ile Tyr Arg Ser Leu Lys Asp Cys Asn Asp His Ser Leu Pro Ile
 1875 1880 1885

Glu Phe Leu Arg Leu Tyr Asn Gly His Ile Asn Ile Asp Tyr Gly Glu
 1890 1895 1900

Asn Leu Thr Ile Pro Ala Thr Asp Ala Thr Asn Asn Ile His Trp Ser
 1905 1910 1915 1920

Tyr Leu His Ile Lys Phe Ala Glu Pro Ile Ser Ile Phe Val Cys Asp
 1925 1930 1935

Ala Glu Leu Pro Val Thr Ala Asn Trp Ser Lys Ile Ile Ile Glu Trp
 1940 1945 1950

Ser Lys His Val Arg Lys Cys Lys Tyr Cys Ser Ser Val Asn Arg Cys

1955

1960

1965

Ile Leu Ile Ala Lys Tyr His Ala Gln Asp Asp Ile Asp Phe Lys Leu
 1970 1975 1980

Asp Asn Ile Thr Ile Leu Lys Thr Tyr Val Cys Leu Gly Ser Lys Leu
 1985 1990 1995 2000

Lys Gly Ser Glu Val Tyr Leu Ile Leu Thr Ile Gly Pro Ala Asn Ile
 2005 2010 2015

Leu Pro Val Phe Asp Val Val Gln Asn Ala Lys Leu Ile Leu Ser Arg
 2020 2025 2030

Thr Lys Asn Phe Ile Met Pro Lys Lys Thr Asp Lys Glu Ser Ile Asp
 2035 2040 2045

Ala Val Ile Lys Ser Leu Ile Pro Phe Leu Cys Tyr Pro Ile Thr Lys
 2050 2055 2060

Lys Gly Ile Lys Thr Ser Leu Ser Lys Leu Lys Ser Val Val Asn Gly
 2065 2070 2075 2080

Asp Ile Leu Ser Tyr Ser Ile Ala Gly Arg Asn Glu Val Phe Ser Asn
 2085 2090 2095

Lys Leu Ile Asn His Lys His Met Asn Ile Leu Lys Trp Leu Asp His
 2100 2105 2110

Val Leu Asn Phe Arg Ser Ala Glu Leu Asn Tyr Asn His Leu Tyr Met
 2115 2120 2125

Ile Glu Ser Thr Tyr Pro Tyr Leu Ser Glu Leu Leu Asn Ser Leu Thr
 2130 2135 2140

Thr Asn Glu Leu Lys Lys Leu Ile Lys Ile Thr Gly Ser Val Leu Tyr
 2145 2150 2155 2160

Asn Leu Pro Asn Glu Gln
 2165